Blockchain

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#ICMA2018

Deepak Agarwal

Plante Moran

Plante Moran fast facts

1924
year founded

2,200+
staff

23
offices worldwide

25+
industries served

49
states with clients

72
countries with clients

45+
services available

27
languages spoken firmwide

Agenda

Blockchain overview

Public sector initiatives

Blockchain Overview

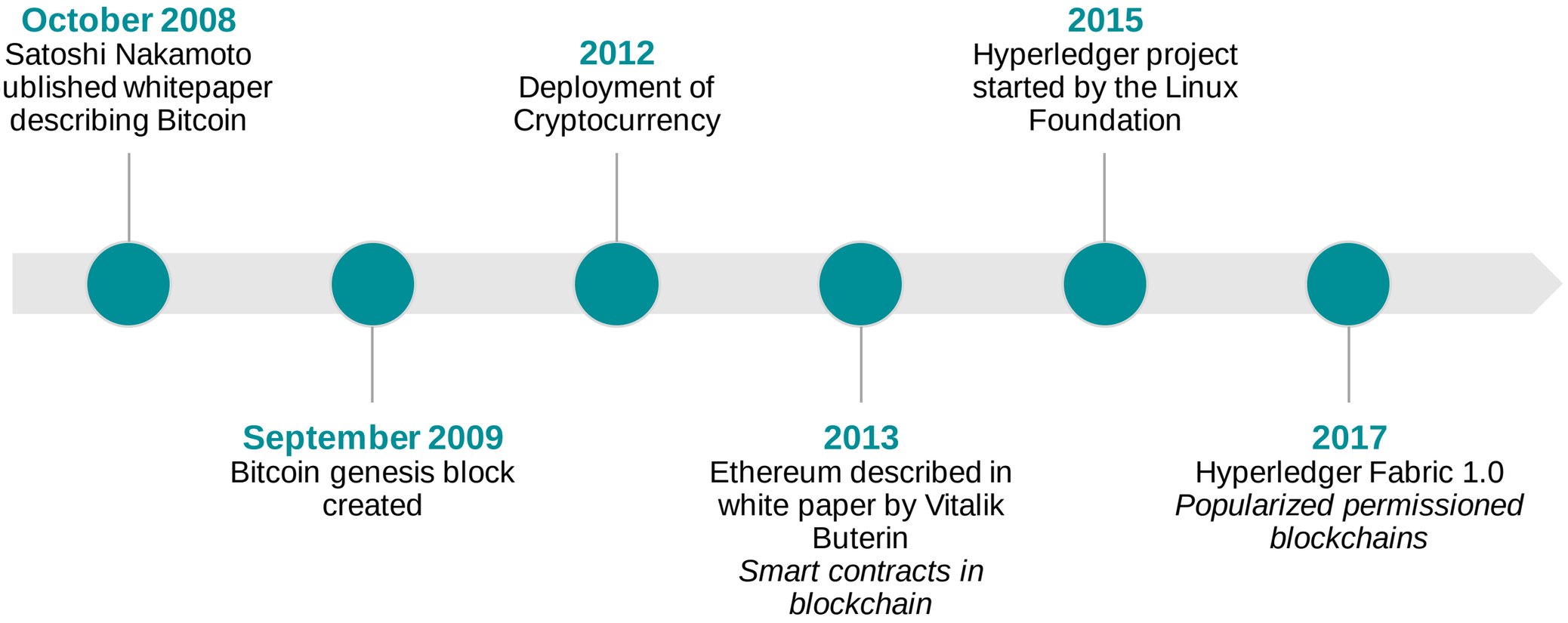
What is blockchain?

> A blockchain is a digital, distributed ledger of transactions, using consensus algorithms to facilitate trust throughout the network.

Blockchain overview

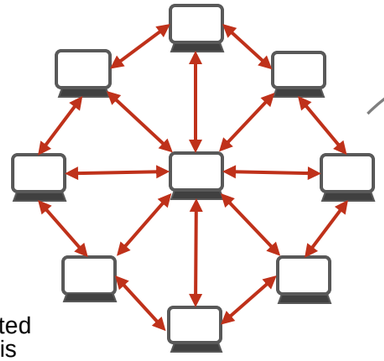
Blockchain is hailed as one of the most disruptive technology advancements since the internet.

History of blockchain

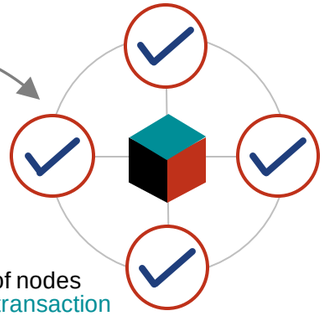


Blockchain: How does it work?

Someone requests a transaction



The requested transaction is broadcast to a P2P network consisting of computers, known as nodes



Validation
The network of nodes validates the transaction and the user's status using known algorithms

A verified transaction can involve cryptocurrency, contracts, records, or other information

Once verified, the transaction is combined with other transactions to create a new block of data for the ledger

This new block is then added to the existing blockchain, in a way that is permanent and unalterable

The transaction is complete

cryptocurrency

Has no intrinsic value in that it is not redeemable for another commodity such as gold

Has no physical form and exists only in the network

It's supply is not determined by a central bank and the network is completely decentralized

What makes Blockchain special?

- Decentralized systems have eliminated the need for intermediary trust authorities
- Since one copy of the ledger is stored on every block, transparency has increased
- Private and public keys have made the blockchain network extremely secure
- To hack a blockchain, all the individual blocks connected on the network would need to be hacked

Types of Blockchains

Public

- Allow anyone to participate in the network
- No pre-existing trust is assumed between participating parties
- Examples include Bitcoin and other common cryptocurrencies

Private

- Limit who can participate in the network
- Pre-existing trust is assumed between participating parties
- Used by companies and consortiums

Permissionless

- No restrictions on read / write access
- All participants have the ability to create transactions on the network

Permissioned

- Access controls on read/write access
- Can restrict who can participate in certain transactions on the network

No participants can delete or change transactions!

Types of Blockchain platforms

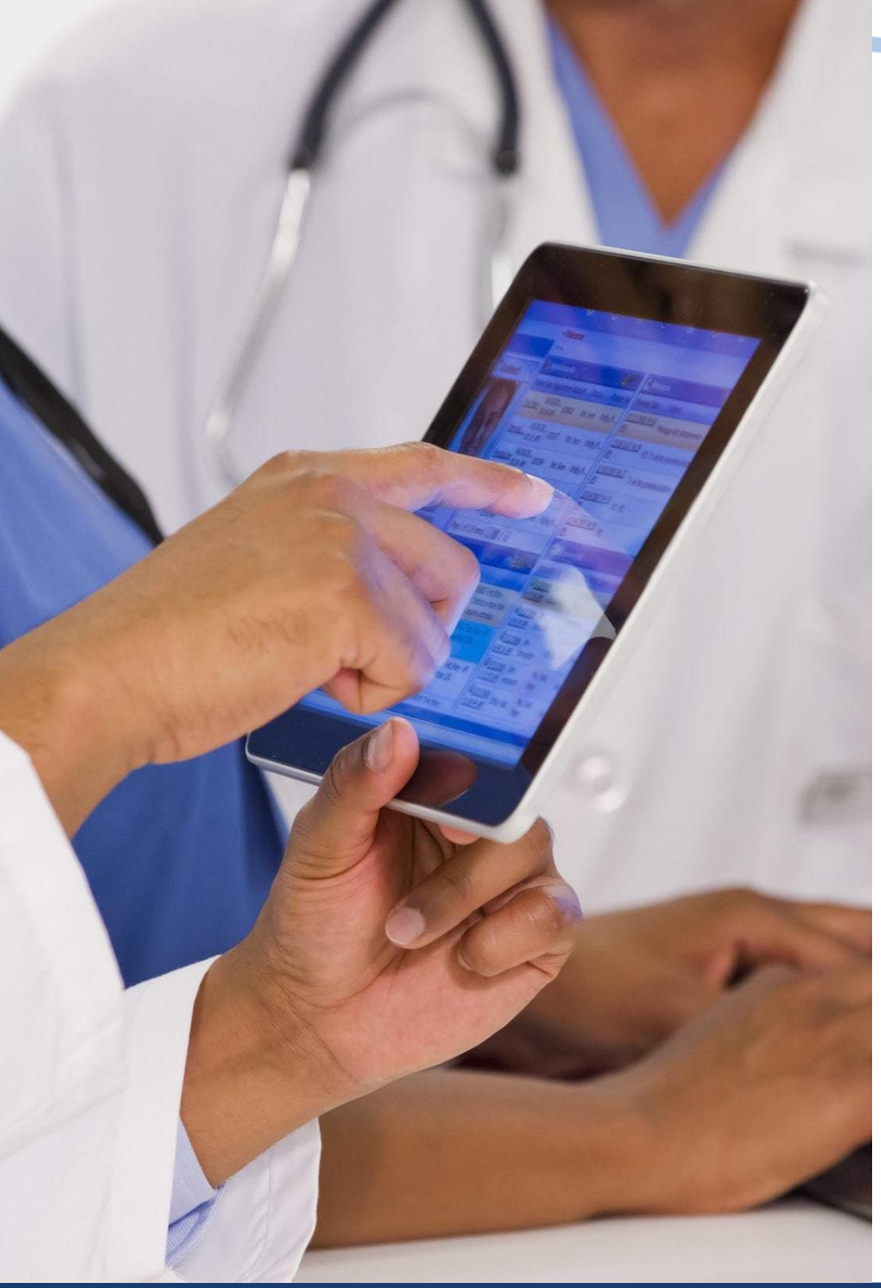
	Bitcoin	• Peer-to-peer electronic cash system • Prevents double-spending
	Ethereum	• Protocol for decentralized applications, smart contracts and decentralized autonomous organizations
	Ripple	• Enables instant, safe and almost free global transactions of any scale
	Hyperledger	• Focusses on ledger to support international business transactions catering financial, technological and supply chain businesses
c·rda	**R3 - Corda**	• Developed for recording, supervising and synchronizing financial agreements between regulated financial institutions

Current Government Environment

Global Government Initiatives

Land Record Management

- Facilitates a way to clarify authenticity of land titles immediately and verify the date of past transactions due to the time-stamped blocks. In turn reduces fraud and corruption
- Example: Country of Georgia
- Example: Country of Ghana



Global Government Initiatives

Health Records

- Improved security, integrity, and patient trust in health records
- Example: County of Estonia
- Example: Country of Dubai

Global Government Initiatives

Cross Border Payments

- Faster, more secure cross-border financial transactions with a clear audit trail
- Blockchain-based trade financing project between Singapore and Hong Kong
- Users in Kenya, Uganda, Tanzania, Nigeria and Congo can send money directly to bank accounts in China (BitPesa)
- Blockchain payment app for a consortium of 61 Japanese banks
- Mastercard – implementing blockchain technology in B2B space across Pacific Islands, Australia, New Zealand and UK.

U.S. Federal Government Recognition of Blockchain

2018 Economic Report from the Joint Economic Committee

- “Government agencies at all levels should consider and examine new uses for this technology that could make the government more efficient in performing its functions”
- http://fortune.com/2018/03/16/congress-blockchain-government/

USAID Primer on Blockchain (2018 Report from the US Agency for International Development)

- Outlines how blockchain technology, distributed ledger technology, and cryptocurrency can help to address development challenges (i.e. in health, agriculture, governance, finance trade, etc)
- https://www.usaid.gov/sites/default/files/documents/15396/USAID-Primer-Blockchain.pdf

U.S. Federal Government Initiatives

U.S. General Services Administration

- Goal: To speed up Gov't contract awards by automating business processes and increasing the accuracy in terms of evaluation of contractors
- FASt Lane – review process to award contracts within 34 days, where the requirements are very clear – to be brought down to single digits
- https://gcn.com/articles/2017/09/21/gsa-looks-to-blockchain-for-procurement.aspx

The U.S. State Department

- Supports public-private-partnerships using Blockchain technology
  - Maximize transparency, accountability, and impact of foreign assistance
  - Supply chain tracking to prevent abusive labor practices
  - Transform foreign aid and trade through financial inclusion, remittances, & cross-border payments
  - Enhance government services and counter corruption
- https://www.state.gov/s/d/17/274725.htm

U.S. Federal Government Initiatives

Department of Treasury

- Pilot program to determine whether Blockchain technology can be used for supply chain management
- Experimenting with using the distributed ledger to manage their IT assets

Department of Homeland Security

- Awarding Small Business Innovation Research grants to develop a use case of Blockchain technology's role in border security
  - https://cointelegraph.com/news/us-government-implements-blockchain-programs-to-improve-transparency-and-efficiency-expert-blog
- Awarded $192k to Factom,Inc to begin beta testing of a capability that uses blockchain technology to secure Internet of Things (IoT) data.
- https://www.dhs.gov/science-and-technology/news/2018/06/15/news-release-dhs-awards-austin-based-factom-inc-192k

U.S. Gov’t State level Initiatives

Delaware Blockchain Initiative

- Welcoming regulatory environment for blockchain technology
- Support building out the blockchain ecosystem from an economic development perspective
- Committing state government to use the technology
- DGCL was amended to allow companies to maintain their corporate records using blockchain technology

Illinois Blockchain Initiative

- Transform the delivery of public and private services
- Redefine the relationship between government and the citizen in terms of data sharing, transparency and trust,
- Make a leading contribution to the State’s digital transformation.
- Initiatives include: placing birth records, health provider registries, an energy credit marketplace, and academic credentials on a blockchain

U.S. Gov’t State level Initiatives

West Virginia: Mobile Voting

- Plans to provide ability for all 55 Counties to cast mobile ballots in November 2018 elections
- Eligible voters will be able to cast their ballots through a mobile application that uses blockchain technology
- https://www.washingtonpost.com/technology/2018/08/10/west-virginia-pilots-mobile-blockchain-voting-app-overseas-voters-november-election/

Florida: Drivers License

- Bill 1357 introduced shows the state may be planning a digital driver’s license program based on blockchain
- Blockchain ledgers and smart contracts be treated as legally-binding methods of data storage

U.S. City/County Level Initiatives

Seminole County, Florida

- Accept cryptocurrency as payment for taxes and fees including: property taxes, driver license and ID card fees, as well as tags and titles

South Burlington, Vermont

- The City Clerks Office has partnered with Propy, a global Blockchain real estate marketplace, to store land record management data on a blockchain

U.S. City/County Level Initiatives

New York City, New York

- Launched Blockchain Resource Center to assist tech talent in exploring job opportunities associated with the Technology

Austin, Texas

- Piloting a program in which its 2000 homeless residents will be given a unique identifier that's safely and securely recorded on the blockchain

Blockchain – Industry Impacts

Real Estate

- Title Insurance
- Mortgages

Healthcare

- Medical device and pharmaceutical supply chain
- Improved security and access to patient records
- Faster claims adjudication and payments

Insurance

- Coverage
- Fraud detection
- Claims Management

Thank you!

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